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EVIDENCE FOR THE PRESENCE OF ACTIN IN NATANTIAN SPERM

Fine structural studies, acrylamide gel electrophoresis and fluorescein labeled anti-actin indicated the presence of actin in natantian sperm. The sperm were obtained from Penaeus aztecus, P. setiferus and Sicyonia brevirostris. The atypical, non-motile natantian sperm possess a nucleoid region bounded by a cytoplasmic band containing membranous material and mitochondria. Extending from the cytoplasmic band is the amorphous cap and an electron dense spike containing filamentous material. Electrophoretic analysis of whole sperm indicated the presence of actin. Fluorescein labeled anti-actin was localized in the spike and to some extent the cap. The cap exhibited a positive reaction when sperm were stained with periodic acid-Schiff reagent and fluoresced orange when sperm were treated with acridine orange. These data suggest that the spike is analogous to the acrosomal filament and the cap analogous to the acrosomal vesicle of typical flagellate sperm. (Supported in part by NOAA Sea Grant # 04-3-158-18).